



Space News Roundup

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No. 36

Goldin urges NASA workers to back refit

National Performance Review 'positive step'

As the results of the President's National Performance Review were released Tuesday, NASA Administrator Daniel S. Goldin challenged all NASA employees to play an important part in the effort to reinvent government.

President Bill Clinton and Vice President Al Gore are taking a much-needed step in the right direction, one that fits with the overall philosophy of America's space agency, he said.

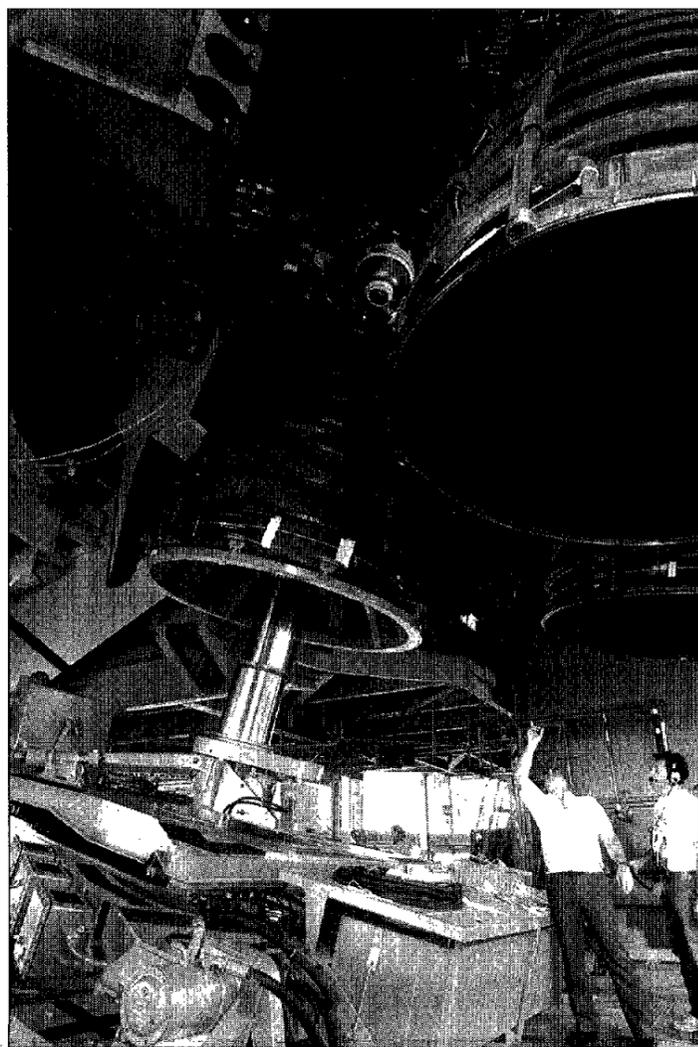
"The quest to reinvent government ultimately boils down to two simple questions," Goldin wrote in a letter to all NASA employees. "Can we make it better? And can we make it cost less? In the search for innovation and new efficiencies, we at NASA have an opportunity to contribute to an important national undertaking. It is the right thing to do for the country, and it is the right thing to do for NASA."

Goldin said he believes NASA's people are among the best and most dedicated public servants. The problems within the agency are problems with the system, not with the agency's people, he said.

"I believe all of us share a common yearning when we put on our NASA badges in the morning," he explained. "We want to be proud of what we do and where we work, and we strive to do our very best because we believe in the exploration of air and space. That is who we are; that is what makes NASA special."

"Now President Clinton and Vice President Gore are formally empowering us to fix that system, and I intend that all of us, together, will seize the moment and run with it. The report of the National Performance Review is not the end of yet another bureaucratic process. It is the beginning of a unique opportunity to remake, reshape and remold the NASA in which we all believe. Together, we can make it happen."

The President and Vice President released the results of the National Performance Review, which looked at methods of improving the efficiency and effectiveness of the federal government, on Sept. 7.



NASA Photo

Rocketdyne technicians Ron Jones, left, and Tim Tibble prepare to remove and replace Discovery's three main engines on Kennedy Space Center's Launch Pad 39B.

Communications satellite passes thorough review

By James Hartsfield

Following a comprehensive review of the flight readiness of the Advanced Communications Technology Satellite last week, the countdown to launch *Discovery* on STS-51 at 6:45 a.m. CDT Sunday began smoothly.

With a launch on time Sunday, *Discovery's* crew — Commander Frank Culbertson, Pilot Bill Readdy and Mission Specialists Jim Newman, Dan Bursch and Carl Walz — will spend its first hours on orbit sending the ACTS

satellite and its transfer orbit stage booster on their way. Today's main activity will be the deployment of the Orbiting and Retrievable Far and Extreme Ultraviolet Spectrometer on a shuttle pallet satellite. ORFEUS will spend six days flying in formation with *Discovery*, about 30 nautical miles away, studying the origin of stars.

On the fifth day of the flight, Walz and Newman will perform a six-hour space walk, another in the test series of space walks

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Competition to cooperation

U.S., Russia sign space agreements

Stating that it "is time to leave behind the vestiges of the Cold War," Vice President Al Gore and Russian Prime Minister Victor Chernomyrdin have signed three joint agreements on space, aeronautics and scientific cooperation.

Initially the agreement will involve expanded activity between the space shuttle and the Mir space station. Later phases will provide an interim human-tended science capability utilizing both Mir and a U.S. laboratory module and the space shuttle. The Mir also will be available for U.S. experiments for up to two years of total astronaut onboard crew time.

The signing followed closely on the heels of a visit by Chernomyrdin to JSC and the Kennedy Space Center, and heralded the start of a new age of cooperation and commercial opportunities for both the U.S. and Russia.

"Turning 40 years of competition into a future of cooperation is no easy task," Gore said at the Sept. 2 signing ceremony in Washington, D.C. "Our Presidents agree in Vancouver that high-level attention would be needed to jump-start our cooperation ... our aim is to broaden the U.S.-Russian partnership so that it encompasses not only security and foreign policy concerns, but also the evolution of an economic partnership for the future."

Consultations between current international partners will take place over the next two months to incorporate Russian experience into a permanent space station design that can provide more robust science and technology that is infinitely more capable and safer to operate, NASA Administrator Daniel S. Goldin said.

With Russian involvement "a truly international space station could signal a new era of peace and cooperation among nations," Goldin said, adding that the baseline would use designs already developed by the U.S. and its partners and that

Russian participation in the space station program could be readily accommodated within the modular redesigned space station.

"For the first time since the dawn of the Space Age, the conditions that gave rise to space exploration have changed," Goldin said. "Our presence on the space frontier began as a product of the Cold War, but that ideological struggle is now over. Cooperation will replace competition, and a new partnership in space between two former adversaries offers considerable economic advantages for both countries."

Incorporation of Russian experience and technology is not expected to have a significant impact on American jobs but may lead to new commercial opportunities. Development of a common space suit and environmental control and life support system are two examples of cooperative efforts that may offer new opportunities for both American and Russian businesses, Goldin said.

"The cross pollination of ideas between our two space-faring nations will be healthy and potentially profitable," Goldin said. "Russian participation will not have a significant impact on U.S. jobs. There will be areas where we rely on proven Russian systems. But joint developments will provide enhanced technology to U.S. companies and will lead to new jobs."

The first phase of the joint programs will form a basis for resolution of engineering and technical problems affecting expansion of a bilateral program involving the U.S. space shuttle and the Russian Mir space station. Mir will be made available for U.S. experiments for up to two years of total U.S. astronaut stay time. The number of space shuttle flights and the length of crew stay time will depend upon the details of the experiments to be defined by Nov. 1.

Please see **SOLAR**, Page 4

Kohrs retires after 30 years with NASA

Space Station *Freedom* Director Richard H. Kohrs is retiring from NASA after 30 years of service to the space agency in Houston and in Washington, D.C.

Kohrs spent 26 years at JSC, working in the Apollo and space shuttle programs, until he was appointed Space Station *Freedom* director on June 1, 1989, with the responsibility for the design, development and future operations of the space station.

"Mr. Kohrs has made many significant contributions to NASA and to the Apollo, space shuttle and space station programs over the last three decades," said Arnold Aldrich, NASA's associate administrator for space systems Development. "His outstanding program management abilities are unique in the agency.

His talents will be sorely missed."

Kohrs began his NASA career in 1963 at the Manned Spacecraft Center, Houston (now JSC), Apollo Spacecraft Program Office. In 1973, he moved to the Space Shuttle Office at JSC and served at various management levels.

Prior to assuming his space station duties in Washington in 1989, he served at JSC as deputy director of the Space Transportation System under Aldrich and was a principal player in returning the shuttle fleet to flight following the *Challenger* accident.

"The leadership and thoroughness which Dick brought to the space shuttle program following the *Challenger* accident anchored the return to flight activities," Aldrich

Please see **KOHR**S, Page 4



Wetherbee



Collins



Foale



Voss



Harris



Titov

Wetherbee to lead Mir rendezvous flight

By Barbara Schwartz

Navy Cmdr. James D. Wetherbee will command *Discovery* in mid-1994 on the STS-63 mission, which will feature the first-ever rendezvous with the Russian space station Mir.

The STS-63 pilot will be Air Force Lt. Col. Eileen M. Collins, and mission specialists will include C. Michael Foale, Ph.D.; Janice E. Voss, Ph.D.; Bernard A. Harris, Jr., M.D.; and Russian Air Force Col. Vladimir G. Titov.

The STS-63 mission also will include the third flight of Spacehab and the deployment and retrieval of the Spartan-201.

Spacehab is a commercially owned pressurized module for human-tended experiments. Spartan 201, the Shuttle Pointed Autonomous Research Tool for Astronomy, is a free-flying retrievable platform with two telescopes to study the solar wind, a continuous stream of electrons, heavy protons and heavy

ions ejected from the Sun and traveling through space at speeds of almost 1 million miles per hour. The solar wind frequently causes problems on Earth by disrupting navigation, communications and electrical power.

Wetherbee, 40, commanded STS-52, a 10-day mission that deployed the Laser Geodynamics Satellite, operated the first U.S. Microgravity Payload with French and American

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JSC

Ticket Window

The following discount tickets are available for purchase in the Bldg. 11 Exchange Store from 10 a.m.-2 p.m. Monday-Thursday and 9 a.m.-3 p.m. Friday. For more information, call x35350 or x30990.

EAA Deep Sea Fishing Trip, Sept. 18 on the Cavalier; \$45 to fish, \$20 to ride. Moody Gardens — Discount tickets to three of five attractions: \$14. Six Flags Over Texas — Discount tickets: one-day pass, \$19.95; two-day pass, \$24.95 and children under four feet, \$18.95. Splash Town USA — Discount tickets: \$10.50. Astroworld — Discount tickets: adult, \$18.95; children under 41/2 feet, \$15.95. Waterworld — Discount tickets: \$9.95. Sea World in San Antonio — Discount tickets: adult, \$19.75; child (3-11), \$13.15. Fiesta Texas, San Antonio — Discount tickets: adult, \$18.35; child (6-11) \$12.75. Space Center Houston — Discount tickets: adult, \$7.50; child (3-11) \$4.50; commemorative: \$9.95. Metro tickets — Passes, books and single tickets available. Movie discounts — General Cinema, \$4.50; AMC Theater, \$3.75; Loew's Theater, \$4.

JSC

Gilruth Center News

Sign up policy — All classes and athletic activities are first come, first served. Sign up in person at the Gilruth Center and show a badge or EAA membership card. Classes tend to fill up two weeks in advance. For more information, call x30304.

EAA badges — Dependents and spouses may apply for photo identification badges from 6:30-9 p.m. Monday-Friday. Dependents must be between 16 and 23 years old.

Defensive driving — Course is offered from 8 a.m.-4:30 p.m. Sept. 18. Cost is \$19.

Weight Safety — Required course for employees wishing to use the weight room is offered from 8-9:30 p.m. Sept. 21. Pre registration is required; cost is \$5.

Aerobics — High/low-impact class meets from 5:15-6:15 p.m. Tuesdays and Thursdays. Cost is \$32 for eight weeks.

Exercise — Low-impact class meets from 5:15-6:15 p.m. Mondays and Wednesdays. Cost is \$24 for eight weeks.

Aikido — Martial arts class meets from 5-7:30 p.m. Tuesdays. Cost is \$15 per month.

Country and western dance — Beginner class meets from 7-8:30 p.m., and intermediate class from 8:30-10 p.m. Mondays beginning Sept. 27. Cost is \$20 per couple.

Softball tournament — Men's open "C" double elimination tournament will be Sept. 25-26. Registration deadline is 7 p.m. Sept. 23; cost is \$95.

Fitness program — Health Related Fitness Program includes a medical examination screening and a 12-week individually prescribed exercise program. For more information, call Larry Weir at x30301.

JSC

Swap Shop

Swap Shop ads are accepted from current and retired NASA civil service employees and on-site contractor employees. Each ad must be submitted on a separate full-sized, revised JSC Form 1452. Deadline is 5 p.m. every Friday, two weeks before the desired date of publication. Ads may be run only once. Send ads to Roundup Swap Shop, Code AP3, or deliver them to the deposit box outside Rm. 147 in Bldg. 2. No phone or fax ads accepted.

Property

Lease: CL/Ellington, 2 BR condo, new paint, carpet, W/D, pool, \$460/mo + dep. 326-1761.

Sale: Bayou Vista, lot, bulkhead good shape, located on West Bay, \$3.5k. 339-1957.

Lease: Egret Bay condo, 1-1-2cp, FPL, microwave, W/D, miniblinds, fans, avail, 9-1-93, \$495/mo. 488-6457.

Lease: Nassau Bay, 4-2-2, recently remodeled, \$895/mo. Minh, x30892 or 484-2456.

Sale: Pebblebrook, condo, all appl, 2 balconies, FPL, pool, \$32k. Laura, x31303 or 326-1573.

Sale: Dickinson, 4-2-5-2, pool, FPL, 3/4 acre, sec sys, \$210k/\$206k. x34354 or 337-1640.

Sale: Univ Green, 2-2-2, study, wetbar, deck, hottub, landscaping, \$99.9k. x33734.

Sale: Yacht Club living, lake view, sec 2-2-5, carport, newly remodeled, boat ramp, dock, x31598 or 474-2339.

Lease: Baywind II, 2-2-5, 2 story, W/D, refrig w/cemaker, FPL, ceiling fan in master, \$575 + \$250 dep. Sue, 282-3951 or 339-3464.

Sale: Forest Bend, 3-2-2, new roof, paint, child's playhouse, lg backyard, upgrades, \$72k negotiable. Ted, x36894 or 482-4814.

Sale: Galv San Luis condo, gulf view, swimup bar, quarter time share, \$14.5k. 326-4938.

Sale: Univ Green, 3-2-2, new AC, c'fans, deck, custom blinds, drapes, all appl, \$83k, assume, no approval, 9.5%, eq. 18k owner will finance second w/\$10k dn. 488-0345.

Sale: Hilltop Lakes Resort, 80 x 120 lot, golf, fishing, horseback riding, near taxiway to runway, \$5k OBO. Charlie, 554-6201.

Rent: Waterfront eff, pool, flexible lease, util paid, nonsmoker, \$425/mo. x48882 or 532-1725.

Sale/Lease: LC, 4-2-2, lg lot on cul-de-sac, cov deck, \$12k equity + \$770/mo or \$850/mo lease. x38843 or 409-925-5011.

Sale: El Dorado Trace condo, 1-1.5-1cp, all appl, patio, balcony, FPL, fans, carpet/wallpaper, low equity assum or FHA approved. Jerene, 488-1900 or 764-0185.

Rent: CL, waterfront, 2-1 condo, remodeled, new carpets, appl, cov parking, workout gym, sauna, boat slip, \$565/mo. x31246 or 333-9161.

Sale: LC, 3-2-5-2, 2 story, new paint, carpet, ceramic tile, updated cabinets, custom shades, fans, contemp, \$84.5k. x38413 or 554-2728.

Sale: Deer Park, 2-1-1, CA/H, appl, tenant occupied, low \$40s. 282-6909 or 476-5817.

Lease: Baywind I condo, 2-2, FPL, W/D conn, new carpet, appl, avail 11-1, \$525/mo + dep. x34940 or 486-7094.

Sale: LC/Meadowbend, 4-2-2, FPL, c'fans, newly landscaped, \$70.9k negotiable, assumable. Peter, 526-1853.

Rent: Fairmont Park East, 3-2-2, cul-de-sac, \$750/mo + dep. 470-7087.

Sale: El Dorado Trace condo, 2 story, 1-1.5, FPL, \$36k. Bill, x35615 or 946-7152.

Lease: Univ Green TH, 3-2-5-2, new carpet, poolside location, avail 9-15, \$875/mo. Greg Westbrook, 335-0999.

Lease: CL Shores, 3 BR, oak flooring, lg kitchen, trees, \$750. 538-1849.

Sale: Angleton, 2 wooded acre lots, near lake, access to area pools, stocked fishing, amenities, \$22k negotiable. 489-7286.

Cars & Trucks

'85 Ford F150 100, 6 cyl, bedliner, \$3850. 474-2660.

'87 Honda Accord DX Coupe, auto, AM/FM/cass, AC, alloy wheels, ex cond, \$4.7k. Jay, x35814 or 992-3149.

'84 Nissan 300ZX, rebuilt engine, receipts, ex cond, \$5.9k. 409-744-3594.

'92 Toyota 1/2 ton PU, fiberglass camper, like new cond, 10.7k mi, \$10.2k. 334-3320.

'89 Eagle Premier ES, 4 DR, auto, extras, low miles, \$5.9k. 480-1729.

'91 Nissan Stanza XE, auto, air, PW/PL, tilt, cruise, AM/FM/cass, 58k mi, \$8.5k. James, x40045 or 332-1129.

'74 Corvette Stingray, orange w/saddle int, ext/int ex cond, all numbers match. 474-2071.

'74 Mobile Scout trlr, self contained, microwave, oven, refrig, AC, new tires/plumbing, \$2.5k. Steve, 880-7182.

'78 Pontiac Sunbird, blue, 2 DR hatchback, 4 cyl, 5 spd, AM/FM/cass, good cond, \$890 OBO. x48882 or 532-1725.

'93 Ford F150 Supercab, V8, auto, loaded, captains chairs, locking fiberglass tonneau cover, 15k mi, \$16.9k. 992-4891 or 333-7491.

'88 Toyota 4 Runner, ex cond, \$7.5k. Carla, 332-0253.

'87 Plymouth Horizon, 4 DR, needs paint, no rust, good tires, new battery, AC, \$2k. Laurie, x45421 or 286-4067.

'84 Toyota Camry LE, 4 DR, loaded, sunroof, auto, 88k mi, ex cond, \$3.2k. 489-4412.

'65 VW Bug, new eng, 35k mi, new front tires, manuals, tools, \$2.5k. Ed, 480-8101 or 664-6808.

'87 VW Cabriolet conv, 78k mi, 5 spd, red/wht top, AC, AM/FM/cass, ex cond, \$5.6k. x38364 or 538-1142.

'93 Chevy stepside sports truck, 1/2 ton, custom wheels, bucket seats, towing package, 10k mi, \$14k. 480-7758.

'79 CJ7 Jeep, 4 x 4, strong V8, \$2850. Ken, 532-1521.

'84 Toyota Corolla hatchback, 5 spd, 125k mi, \$1050. 286-0022.

'81 Toyota Celica, auto, runs good, \$1.2k OBO. x31285 or 992-3642.

'85 Ford Escort EXP, 124k mi, runs good, \$800 OBO. Dave, x45381.

Boats & Planes

'78 SeaRay SRV220 Overnighter w/Cuddy Cabin 22', 3501 300hp I/O w/86 Calkins Tandem Axle Trlr, full roller, closed fresh water sys w/swim platform, retail \$8.7-\$9.3k, make offer. 332-4807.

Nissan O/B, 8 hp, ex cond, \$450. Jim, x39229 or 482-7873.

Santana 22, fixed keel, ex cond, \$3.5k. x34063.

16' aluminum boat w/trailer, \$400. 554-6138.

Cycles

'90 Suzuki moped, 20 mph, \$550. 332-1583.

JSC

Dates & Data

Today

NSS meets — The National Space Society Clear Lake Chapter will meet at 7 p.m. Sept. 13 at Freeman Memorial Library. Chapter President Marianne Dyson will present "An Update on the Fate of the Delta Clipper Program." For more information, call Clint at 333-4202.

Cafeteria menu — Special: Italian cutlet. Entrees: chicken a la king, enchiladas with chili, baked lasagna with meat, steamed fish, French dip sandwich. Soup: split pea and ham. Vegetables: Brussels sprouts, oriental vegetables, buttered carrots, lima beans.

Tuesday

Fuzzy control — The American Institute of Aeronautics and Astronautics' Automation and Robotics Technical Committee will meet at 11:30 a.m. Sept. 14 in the Gilruth Center. Dr. Jack Aldridge of Advantex will discuss "Tuning Fuzzy Control for Electric Motors." For details, call Zafar Taqvi at 333-6544.

Cafeteria menu — Special: stuffed cabbage rolls. Entrees: turkey and dressing, country style steak and hash browns, beef ravioli, baked chicken, French dip sandwich. Soup: tomato Florentine. Vegetables: Italian blend, okra and tomatoes, corn cobbette, navy beans.

Wednesday

Cafeteria menu — Special: pepper steak. Entrees: liver and onions, catfish and hush puppies, stir-fry pork with rice, steamed fish, Reuben sandwich. Vegetables: steamed broccoli, yellow squash,

macaroni and cheese, vegetable sticks.

Thursday

Cafeteria menu — Special: chicken fried steak. Entrees: beef tacos, scrod with Hollandaise sauce, steamed fish, French dip sandwich. Soup: navy bean. Vegetables: spinach, cut corn, breaded okra, pinto beans.

Friday

Cafeteria menu — Special: tuna noodle casserole. Entrees: steamed salmon steak, roast beef, baked chicken, steamed fish, Reuben sandwich. Soup: seafood gumbo. Vegetables: French cut green beans, cauliflower with cheese, green peas, black-eyed peas.

Monday

Cafeteria menu — Special: breaded cutlet. Entrees: baked chicken, beef chop suey, smoked sausage and German potato salad, French dip sandwich. Soup: cream of broccoli. Vegetables: okra and tomatoes, peas, navy beans, baby carrots.

Sept. 22

Graphics exhibition — The Information Systems Directorate will sponsor a graphics exhibition from 9 a.m.-4:30 p.m. Sept. 22 at the ISD Products Center in Bldg. 12, Rms. 254/256. Representatives from 16 software companies will demonstrate their software products. For more information, call the IPC at x37575.

Freedom Fighters meet — The Space Station Freedom Fighters will meet at noon and 5 p.m. Sept. 22. The noon meeting will be at the

McDonnell Douglas Bldg. at Space Center and Bay Area Blvd. The 5 p.m. meeting will be in the Civic Room at the Rockwell Bldg. located at 600 Gemini. For more information call David Cochran at 482-7005.

Sept. 24

Slogan deadline — The deadline for Security Awareness Week slogan entries is close of business Sept. 24. NASA employees and contractors are invited to suggest slogans promoting good security practices. Send submittals to Joe Olivarez or Cindy King at JS2. Call King at x33251 for more information.

Sept. 27

Flu shots — The JSC Clinic will offer influenza vaccine inoculations from 10 a.m.-noon and 2-3:30 p.m. Sept. 27 through Jan. 31. For more information, call the clinic at x34111.

Sept. 29

NMA meets — The JSC chapter of the National Management Association will meet at 5 p.m. Sept. 29 tonight at the Gilruth Center. Acting JSC Director Paul J. Weitz, with discuss the "State of the Center." Members are encouraged to invite interested non-members to attend. Deadline for reservations is Sept. 22; members should contact their boosters and non-members should call Allison Kruest at x47115.

Oct. 31

Bike tour — The Lions Eye Bank of Texas and the JSC Bike Club are sponsoring the 15th Annual Texas Coastal Cruise. The ride will begin at 8 a.m. Oct. 31 at Clear Lake Park. For details, call 798-5510.

Audiovisual & Computers

Kenwood stereo rec, KR-A5020, 60 watts per channel, 2 AV inputs, autplay, synchro recordings, remote, tape deck, cd, 3 ac outlets, 4 spkr conn, manual, \$125. Omar, 282-4978.

Tandy EX1000 8088 computer, 1200 bps modem, 640k RAM, 2 FD, \$100. Greg, x37318 or 335-8102.

AT&T 6300 w/640k RAM, 20 MB HD, color monitor, \$350; Panasonic KX-P1524 wide carr 24 pin printer, \$250. Al, x35917 or 331-9453.

Sansui 3 way spkrs, 120 watt, 10" woofer, 4" midrange, 2" tweeter, \$100/pr; JVC 25 watt stereo recv, model RX-110, \$40. x37137 or 482-8966.

IBM compatible, 386SX/16Mhz, 1 MB RAM, upgradeable, 40 MB HD, kybd, 14" VGA monitor, trackball mouse, sw/manuals, \$625. 335-1607.

Apple Mac cd-150 ext CD-ROM drive w/software, ROM disks, \$250. Jim, 335-2539 or 474-2368.

AM/FM car stereo, digital tuning, station memory, out of '93 Plymouth Laser, \$40 OBO. Ted, x36894 or 992-4814.

Mac Plus w/4 MB RAM, second FD, std kybd, manuals, sw, \$400. Tom, 482-2527.

Star Powermate daisywheel printer, wide carr, tractor feed, single sheet, cable, ex cond, \$100. Speir, 333-2263.

IBM PC Jr, exp to 512k, 2 FD, color monitor, extra kybd, joystick, best offer. Ken, x48950 or 488-3828.

486DX/33, Dos 6.0, 1.2/1.44 FD, exp to 175 MB, VGA video, \$990. Charlie, x37837 or 332-7658.

Mac II si, 5 MB RAM, 105 MB HD, cpu only, \$800. x31241 or 480-5650.

Commodore 64, color monitor, printer, modem, sw, \$300. Bob, 283-1193 or 326-5616.

CDs, rock, pop, misc, \$7/cd. x45381.

Photographic

Nikon 103 underwater flash and camera mount, bag incl, \$250 OBO. 282-6909.

Pets & Livestock

Free, 2 yr old gray lop-eared rabbit. Robert, x47261 or 488-5238.

Lab/collier mix, docile, 4 yr old, 50#, spayed, current shots, has allergies. x49712 or 585-3610.

Free, female calico, 1 yr old, shots current, frontal declawed, spayed. Leah, 486-1804.

Musical Instruments

B.C. Fich guitar w/case/stand, \$400; Crate 40c amp, \$300; NADY 201 handheld wireless mic, \$200; ultra mic stand, \$60; digital delay, \$350. Kate, 998-3562.

5 pc drum set, made by Pearl, 3 toms, snare, hi hat, crash cymbals, chrome, good cond, \$600. Bill, x47745 or 486-4895.

CB700 Percussion kit w/bells, stand, pitch pipe, metronome, stick bag, 2 sets of mallets, \$150 OBO. 538-4197.

Ibanez RG550 elec guitar w/active EMG pickups/hardshell case, will layaway, \$495. 280-9621.

King model trumpet, no dings, \$200 negotiable. Vance, 235-3460 or 992-7004.

Household

Kg sz waterbed w/thermostat/heater, liner, matt, frame, bedding, \$100. George, x35398 or 474-7021.

4 pc Spanish sec sofa, gold fabric, wood trim, good cond, \$200. 482-1888.

Two air mattresses, heavy duty, dbl and single bed sizes, air pump, ex cond, \$75 for both. Speir, 333-2263.

High back sofa and matching loveseat, grey/blk print w/blk lacquer/gold accents, \$300 OBO. Sharyl, x35342.

Contemporary style couch w/mauve/blue colors, back has pillows, \$350. x38182.

Wanted

Want part-time kitchen help at Gilruth, waitress, dishwasher positions, evening shift 4 pm to 9:30 pm. Pat, x30326.

Want ride for teenager to/from private school, prefer responsible, safe, adult driver. Live in Camino South, school located near Hwy 3 and So Shaver, arrives school 7:15-7:50, departs school 3:10-4:15, negotiable compensation/hours flex. 335-6530 or 480-3849.

Want female roommate to share house, close to I45, \$250/mo +1/3 util. Theresa, 333-6491 or 480-6980.

Want engineer to design and prototype a stable gauss sensor in the 0-500 milligauss. Paul Ashe, 279-9937.

Want car pool rider from NW/Bear Creek to JSC, hours 7:00 am - 4 pm. Raquel, x31810.

Want nonsmoking roommate to share 3-2-5-2 house in Meadowbend/LC, \$300/mo + 1/3 util + dep. Gloria, x31891 or 538-2283.

Want W/D, matching, working, full sz or stackable, inexpensive. 339-2869.

Want female roommate to share 3 BR house in the Landing/LC, \$300/mo + 1/2 util. Cathy, x47802 or 554-4579.

Want to contact female driver of blk Accord or Camry asking questions about red Acura, Sat, 8-28 at JSC Credit Union. 538-2298.

Want to share house in Pasadena, private bedroom, bath, upstairs, \$250/mo. 946-4752.

Miscellaneous

6' pool tbl, slate top w/access, good cond, \$300. 538-1708.

Bridal petticoat, full length, drawstring waist, for medium to tall skirt dresses, \$35 OBO. x38850 or 526-4967.

Richenbacher bass guitar, \$275; microwave, \$35; AT&T computer, \$90; Okidata printer, \$30; commercial foosball tbl, \$325. 339-1957.

Lincoln arc welding machine, 225 amp, ac only, \$150. 479-5594.

English saddle, new, 17", \$300. 409-744-3594.

Ivory couch w/pastel florals, \$75; 2 end tbls, \$25/ea; 3 level bookcase, \$25; desk w/chair, \$175; Singer vacuum, \$30; 2 - 21" color tv's, non-working, make offer; Soloflex exercise machine, \$300. Steve, x34189 or 486-5801.

Round kitchen tbl, solid lt colored wood, tan fabric cov chairs w/arm rests, ex cond, \$300 OBO. 992-1768.

Baby bassinets, wht, w/skirt, \$35; blue baby carriage/stroller, \$35; DP exercise bike, \$20. x33475.

Wagner power roller paint sys, \$50; aluminum softball bats, 5 for \$25. Steve, x36725.

Infant car seat/carrier, \$15; 2 walk/push toys, \$10/ea; umbrella stroller, \$10; crib set, \$30; 3.5 x 2 tan stuffed rabbit, \$30. 212-1320 or 486-7

High-technology partnership to aid both U.S., Russia

Editor's note: The following are the abridged text of joint statements and agreements on U.S.-Russian space program cooperation released Sept. 2 by the White House.]

Vice President Al Gore and Russian Prime Minister Viktor Chernomyrdin issued three joint statements today in the areas of space and aeronautical cooperation. Through our high-technology partnership, the U.S. and Russia will work to realize new technological advances, productivity gains and cost savings. These joint statements create a framework and strategy for cooperation in these important high-technology areas.

In a joint statement signed at the conclusion of the first meeting of the U.S. Russian Joint Commission on Energy and Space, Gore and Chernomyrdin agreed to combine our considerable experience and resources in space to carry out a large-scale program of scientific, technical and technological research. Both sides agree that significant mutual benefits could be achieved through cooperation in

space science and exploration activities.

Through the joint statement, the U.S. and Russia have agreed to begin the first phase of space cooperation immediately. This phase will expand cooperation involving the U.S.

space shuttle and the Russian Mir space station. A second phase will provide an interim human-tended space science capability, by utilizing a Mir module with a U.S. laboratory module and the U.S. space shuttle. It also will provide practical experience in the use of different transportation systems, performance of complex construction and assembly efforts, and command and control.

All planned U.S. Russian space cooperation programs are interconnected and have the common goal of creating an effective space-based scientific research complex earlier and with less cost than if undertaken separately. The United States and Russia are convinced that a unified space station can offer significant advantages to all concerned, including current U.S. partners—Canada, Europe and Japan. The U.S. and Russia will jointly develop a

detailed plan of activities for such a space station. This plan will serve as the basis for early review and decision within each government and as the basis for consultation with their current international partners.

The Vice President and Prime Minister agreed that the U.S. and Russia will examine the enormous potential and mutual benefit of expanding cooperation in environmental observations from space and in space science. The joint statement highlights the importance each country attaches to bilateral and multilateral cooperation in the fields of space-based Earth observation, environmental monitoring and space science and the benefits to be gained from such cooperation by both sides.

To advance U.S.-Russian partnership in this area, we will conduct a joint study to determine the feasibility of cooperative programs in environmental observation from space and in space science. The study will be conducted by NASA, the National Oceanic and Atmospheric Administration, and the Russian Space Agency, under the auspices of the 1992 U.S.-

Russian Space Cooperation Agreement. It is to be completed by Nov. 1, 1993.

The Vice President and Prime Minister agreed that the U.S. and Russia will undertake new cooperation in the area of fundamental aeronautical sciences. To this end, the U.S. and Russia will negotiate a Memorandum of Understanding on Cooperation in Aeronautical Sciences between NASA and the Russian State Committee for Defense Industries (Roskomoboronprom).

Later this month, a delegation of NASA specialists will travel to Russia to meet with Russian officials and visit technical institutes which may be involved in the agreed-upon activities. The delegation will identify specific projects and joint research activities of mutual interest and discuss the potential establishment of a U.S.-Russian Joint Working Group in Aeronautical Sciences to manage the cooperative relationship. It is expected that these negotiations will be completed in time to allow the new agreement to be signed and enter into force by Nov. 1, 1993.

Environmental, space science cooperation

Having reviewed the status of the agreement between the United States of America and the Russian Federation Concerning Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes dated June 17, 1992, the parties agree that it would be mutually beneficial to examine expanded cooperative activities in environmental observations from space and in space science.

Given the particular importance to Russia and the United States of their current efforts to understand the scientific basis for global environmental change and to conduct scientific exploration to expand human understanding of the origin and nature of the solar system and universe, the parties consider further cooperation in this area as most important and consistent with the interest of both Russia and the United States, as well as the entire international community.

With this in mind, the U.S. and Russia will ask the Joint Working Groups established under the 1992 Space Cooperation Agreement to initiate a study to define and determine the feasibility of cooperative programs in environmental observations from space and in space science. This joint study shall be pursued in accordance with the following principles:

- joining on a mutually beneficial basis the resources, and the scientific and technical potential and experience of Russia and the United States in environmental observation from space and space sciences;
- committing to the full and open sharing of civil space-based and in situ data for the purposes of environmental monitoring and global change research;
- working with current international partners (in coordination mechanisms such as the Committee on Earth Observation Satellites) and bilaterally in the U.S.-Russian Joint Working Groups on Solar System Exploration, Astronomy and Astrophysics, Solar-Terrestrial Physics, Earth Sciences, Mission to Planet Earth (including the Subgroup on Operational Satellites Systems and Data Exchange), and Space Biomedical and Life Support Systems, and consistent with existing international obligations assumed by each of the parties;
- seeking to expand U.S.-Russian cooperation in environmental observations from space and in space science with a goal to increase international cooperation to minimize cost, decrease duplication, and increase the scope and effectiveness of research in these disciplines.

The parties hereby instruct NASA, the Russian Space Agency, the National Oceanographic and Atmospheric Administration, the Russian Federal Hydrometeorological and Environmental Monitoring Service, the Ministry of Environmental Protection and Natural Resources of the Russian Federation, the Russian Academy of Sciences, and other relevant entities to undertake, in pursuance of this joint statement, the planned studies that will define development of the specific projects involving both countries' firms and organizations, being guided by the above principles and provisions and by existing agreements of both nations with their international partners, with a completion date for the studies not later than Nov. 1, 1993.



JSC Photo by Andrew Patnesky

Russian astronauts Vladimir Titov, left, and Sergei Krikalev discuss training activities for the upcoming STS-60 flight, on which Krikalev is scheduled to fly.

Space cooperation agreement allows two years' time on Mir

The parties note with satisfaction past agreement on the following: the flight of a Russian cosmonaut on the space shuttle system in 1993 and 1994, American astronauts on the Mir station and the docking on a joint flight of these two space complexes in 1995. These activities are consistent with the national space programs of both countries and the overall development of a spirit of trust, partnership and long-term political and scientific and technological cooperation between Russia and the United States.

With this in mind it is the intent of the U.S. and Russia to undertake a cooperative human space flight program. Interim investigation has already indicated potential advantages of joint cooperative activities in a truly international space station program. The parties intend to pursue such cooperation in accordance with the following principles:

- joining on a mutually beneficial basis the resources and the scientific, technological, and industrial potentials of Russia and the U.S. in space activities to carry out a large-scale program of scientific, technical and technological research;
- working with each of our current partners, and in accordance with earlier international obligations assumed by each of the parties under the *Freedom* and Mir projects;
- operating in an orbit which is accessible by both U.S. and Russian resources;
- utilizing compatible service systems, enhancing reliability of the station and increasing the flexibility of transportation and technical maintenance;
- performing activities under cooperative programs on mutually beneficial terms, and including on a contract basis the procurement of individual systems and units or the provision of services.

The first phase of our joint programs begins immediately and is designed to form a basis for resolution of engineering and technical problems. This initial phase encompasses an expansion of our bilateral program involving the space shuttle and Mir. Mir will be made

available for U.S. experiments for up to two years of total U.S. astronaut stay time. The number of shuttle flights and the length of crew stay time will depend upon the details of the experiments to be defined by Nov. 1, 1993. During phase one, the use of the Russian modules "Priroda" and "Spektr," equipped with U.S. experiments, would undertake a wide-scale research program. These missions will provide valuable in-orbit experience in rendezvous, docking and joint space-based research in life sciences, microgravity and Earth resources. It will bring to reality performance of large-scale space operations in the future. The parties consider it is reasonable to initiate in 1993 the joint development of a solar dynamic power system with a test flight on the space shuttle and Mir in 1996, the joint development of environmental control and life support systems and a common space suit.

Subsequent joint efforts on the second phase will be directed to the use of a Mir module of the next generation, in conjunction with a U.S. laboratory module and the shuttle. This facility would provide an interim human-tended space science capability where significant scientific experimentation can take place in a microgravity environment and also provide practical experience gained out of the use of different transportation systems (including the U.S. space shuttle and the Russian Proton), performance of complex construction and assembly efforts and command and control process of orbital structure of considerable complexity. Successful implementation of this phase could constitute a key element of a truly international space station.

It is envisioned that the U.S. will provide compensation to Russia for services to be provided during phase one in the amount of \$100 million in fiscal year 1994. Additional funding of \$300 million, for compensation of phase one and for mutually agreed upon phase two activities, will be provided through 1997.

The parties hereby instruct NASA and RSA to develop by Nov. 1, 1993, a detailed plan of activities for an international space station.

Aeronautics will get boost through new cooperation

The United States and the Russian Federation have agreed in principle to undertake new cooperation in the area of fundamental aeronautical sciences.

As part of the U.S. Russian Joint Commission on Energy and Space, co-chaired by Vice President Gore and Prime Minister Chernomyrdin, the two sides agreed to take concrete steps to complete the framework for new cooperative research in fundamental aeronautical sciences, utilizing the complementary capabilities, facilities and talents of each side.

The commission agreed that cooperation will take place through a variety of mechanisms, including cooperative scientific research projects, cooperative utilization of test facilities and test articles, jointly sponsored scientific conferences, symposia and workshops, and exchanges of data, information and documentation. Areas that were noted as particularly promising included hypersonic research, transition and turbulence, thermal protection system materials, chemically reacting flows, and composite structures and materials, including computational modeling.

A delegation of specialists from NASA will travel to Russia during the month of September 1993 for technical discussions with Roskomoboronprom. These discussions will be for the purpose of identifying specific projects and joint research activities to be pursued over the next several years between the two countries. The delegations will also discuss the establishment of a U.S.-Russian Joint Working Group in Aeronautical Sciences.

Launch agreement opens commercial market to Russia

Gore and Chernomyrdin signed an agreement today between the United States and the Russian Federation regarding commercial space launch services. The agreement opens the international commercial space launch market, hitherto limited to U.S., European and Chinese launch service providers, to Russia. The Russian space launch industry, with its strong performance record, should find a ready market for its services. We also believe this agreement is a first step toward Russian entry into other high-technology international markets.

The agreement establishes basic rules for the commercial space launch market concerning government involvement in such areas as subsidies, marketing inducements and corrupt business practices. Russian commercial space launch providers will be able to compete for contracts to launch up to eight telecommunications satellites, in addition to the INMARSAT 3 satellite, to geosynchronous Earth orbit for international customers until Dec. 31, 2000. Up to four launches may be of two satellites, and these may be counted as one, if the parties mutually agree that market conditions warrant such treatment. Russia will also be able to provide three launches (of seven satellites each) to low-Earth orbit for the Iridium system.

The agreement obligates Russia to charge prices for its launch services comparable to Western prices for comparable services. Prices more than 7.5 percent below the lowest Western bid would trigger consultations.

NASA breaks ground for Classroom of Future

NASA broke ground this past week for two projects with national potential—the Classroom of the Future and the National Technology Transfer Center at Wheeling Jesuit College, Wheeling, W.Va.

NASA Administrator Daniel S. Goldin, U.S. Sen. Robert C. Byrd and U.S. Rep. Alan B. Mollohan participated in the ceremony.

The Classroom of the Future is a leading-edge, educational technology initiative to improve the quality of science, mathematics and technology education nationwide. It is a "laboratory" to develop stimulating, interactive multimedia curriculum materials and model pre-service

and in-service teacher education programs.

Today's students—the MTV generation—are technologically sophisticated and accustomed to dynamic, interactive recreation, entertainment and learning. These new curricula will actively engage students and teachers in real world applications using NASA research data and technology tools while offering new ways to study mathematics, science and technology.

The research, development and evaluation of these multimedia materials support the National Education Goals and apply challenging standards in science, mathematics and

technology subjects. These curricula will be available to teachers nationwide at a nominal fee.

The Classroom of the Future will include computer interaction facilities, a Challenger Center flight simulator, video and software development and testing facilities, a "hands-on" discovery center, state-of-the-art science laboratories, a NASA Teacher Resource Center and satellite uplink and downlink capabilities that will transmit interactive distance-learning programs throughout the nation.

The new 48,000 square-foot Classroom of the Future is scheduled to be completed in the Fall of

1994. Project employees currently are working in a temporary location, developing pilot educational technology products for NASA.

The National Technology Transfer Center operates a national gateway service that assists U.S. firms in rapidly locating federal laboratory technology and provides the associated technology transfer assistance.

The NTTC gateway service, which began in October 1992, currently handles between 200 to 300 technical inquiries from industry per month.

Other key NTTC activities include technology transfer training and education services, outreach

to industry to promote federal technology transfer and initiatives to stimulate private/public technology partnerships with federal labs and to further develop the national network.

Other participants in the groundbreaking ceremony included the Rev. Thomas S. Aker, S.J., president of Wheeling Jesuit College; Dr. Donald Hofreuter, chairman of the Wheeling Jesuit College Board of Directors; Lee W. Rivers, executive director of the National Technology Transfer Center; Dr. Dan Miller, director of the Classroom of the Future; and Frank Owens, director of NASA's Education Division.



Kathy Nato, left, displays the skunk burgee while Rick Caruso passes the skunk award to winner Gerald Hunt, right.

Chardonay earns regatta Skunk Cup

Honors, although not top honors, were presented to JSC's Gerald Hunt, captain of the sailboat "Chardonay," following the 21st JSC Regatta held Aug. 25.

Hunt trailed the lead boat by 48 minutes to secure a firm last-place finish and glean the uncoveted "Skunk Cup," the only award presented at the semi-annual race.

Hunt also earned the action of organizing the next running of the Regatta, which originated in April 1978 as the Space Shuttle Program Regatta.

A total of 12 boats, ranging in size from 22 to 38 feet, entered the race, with 11 completing the course. The goal of the regatta is to avoid finishing last and receiving the "Skunk"

trophy, which the loser must display in their office until the next running of the race. The informal event is open to all JSC employees and contractors, and the next running is tentatively scheduled for October. For more information, contact Hunt at 282-4536 or Rick Caruso, the most recently vindicated "Skunk" recipient, at x37753.

Solar dynamic power one goal

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Phase one will focus on rendezvous, docking and joint space-based research in life sciences, microgravity and Earth resources, and will include joint development of a solar dynamic power system with a test flight on the space shuttle and Mir in 1996, as well as environmental control and life support systems and a common space suit.

The second phase of cooperation will involve the use of a Russian Mir module of the next generation, in conjunction with a U.S. laboratory module and space shuttle to provide an interim human-tended space science capability that could

constitute a key element of a truly international space station.

The U.S. will pay Russia \$100 million in fiscal year 1994 for services to be provided during phase one. Additional funding of \$300 million, for compensation of phase one and for mutually agreed upon phase two activities, will be provided through 1997.

In addition to the joint statement on space cooperation, the U.S. and Russia also signed a commercial launch agreement giving Russia access to the international launch services market and joint statements on aeronautics and environmental monitoring and space science.

Gore and Chernomyrdin were joined at the signing by Gens. Tom Stafford and Alexei Leonov, who flew together on the Apollo-Soyuz Test Project rendezvous and docking mission of July 1975. Gore said the agreements owed much to the work of the space scientists, engineers, astronauts and cosmonauts who worked together to make that mission a reality.

"The future holds more of what the Apollo-Soyuz project foretold: close work together to minimize costs and cut the time needed to do projects while achieving more than would otherwise have been possible," Gore said.

STS-63 features first female pilot

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experiments and tested the Canadian-built Space Vision System aboard *Columbia* in October 1992.

He also was pilot on STS-32 aboard *Columbia* in January 1990, a mission that deployed the Syncom IV-F5 satellite and retrieved the Long Duration Exposure Facility.

Collins, 36, is the first female to serve as a pilot on a space shuttle mission. She was born in Elmira, N.Y., and received a master of science degree in operations research from Stanford University in 1986 and a master of arts degree in space systems management from

Webster University in 1989.

Foale, 36, was a mission specialist on STS-45, the first ATLAS flight, in March 1992 and on STS-56 in April 1993, which carried ATLAS-2 and the SPARTAN retrievable satellite.

Voss, 36, was a mission specialist on STS-57 in June 1993, on which the first Spacehab module was flown and the European Retrievable Carrier satellite was retrieved.

Harris, 37, was a mission specialist on the STS-55 Spacelab D-2 mission dedicated to German scientific experiments, in April 1993.

Titov, 46, commanded Soyuz T-8

in April 1983, a mission to dock with and repair the faulty Salyut 7 solar array. The mission was aborted after two days to avoid a crash when the rendezvous closing rate was determined to be too fast.

He also commanded Soyuz TM-4, launched in December 1987, which docked with the orbiting Mir 1 space station. Titov spent 365 days, 22 hours, 39 minutes in space, setting a long-duration world record. He also performed two space walks during his mission.

Titov was selected in October 1992 as one of two cosmonauts to train for space shuttle missions.

Faculty fellows receive grants to continue work

Six Summer Faculty Fellows recently were awarded grants to continue their research at JSC during the school year.

The six were among 35 visiting scientists who spent 10 weeks this summer working with JSC scientists and engineers on a variety of NASA projects. Each of the six will receive a \$16,000 grant to continue their work, said Stan Goldstein, director of University Programs at JSC.

The fellows are Dr. George Blanford of the University of Houston-Clear Lake, working with the Solar System Exploration Division; Dr. Gerald Cote of Texas A&M University and Dr. Fernando J.

Figuroa of Tulane University, both working with the Medical Sciences Division; Dr. Rex E. Gantenbein of the University of Wyoming, working with the Tracking and Communication Division; Dr. Andrew Meade of Rice University, working with the Information Technology Division; and Dr. Trevor Williams of the University of Cincinnati, working with the Navigation, Control and Integration Division.

The purpose of the fellowship program is to foster closer ties with universities, update university faculty members on the research being conducted at JSC and updating JSC researchers on the work being done at the university level.

Mission Control viewing room, cafeteria hours set

The Mission Control Center viewing room will be open to JSC and contractor badged employees and their families during portions of the STS-51 mission.

Based on a Sunday launch, employees will be allowed to visit the MCC Tuesday from 11:30 a.m.-2:30 p.m.; Wednesday from 11:30-2:30 and 5-7 p.m.; Saturday from 1-5 p.m.; and Sunday from 1-5 p.m. There will be no viewing hours on Sept. 21 due to the scheduled landing.

Employees must wear their badges and escort family members through the regular public entrance on the northeast side of Bldg. 30.

Children under 5 will not be permitted. No flash photography or loud talking will be permitted at any time.

Because of the dynamic nature of shuttle missions, viewing hours may be changed or canceled without notice. For the latest information on the schedule, call the Employee Information Service at x36765.

Special cafeteria hours also will be in effect during the mission.

The Bldg. 11 cafeteria will be open from 6:30 a.m.-2 p.m. weekdays, except launch and landing days. The Bldg. 3 cafeteria will be open normal hours from 7 a.m.-2 p.m. weekdays. Neither cafeteria will be open on weekends.

Two review teams give ACTS cargo clean bill of health for STS-51 launch

(Continued from Page 1)

begun earlier this year to refine techniques, training and build experience, as well as test several tools to be used on December's shuttle flight to service the Hubble Space Telescope.

The crew left JSC for KSC Thursday. As of late last week, forecasters were calling for a 70 percent chance of acceptable weather.

Two review teams, one consisting of the ACTS satellite's builders and another of independent personnel, reviewed the history of ACTS' construction and components in the wake of the recent malfunctions of

the Mars Observer probe and the NOAA-13 weather satellite.

ACTS was built by the same contractor as the other two satellites, Martin Marietta Astro Space, and the teams studied the satellite's design, manufacturing and testing to ensure that no problems similar to Mars Observer or NOAA-13 were likely. Following the assessments, all members of the two teams unanimously agreed that ACTS appeared to be ready for launch.

The launch was postponed for two days to allow the teams time to complete their reviews.

Kohrs retires from NASA

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said. "He personally guided the establishment of the program analyses and processes upon which today's shuttle safety program continues to be based."

Over the years, Kohrs repeatedly has been lauded for his dedication and hard work for the nation's space program. He has received the JSC Outstanding Leadership Medal, the NASA Exceptional Service Medal and the NASA Distinguished Service Medal. Twice he received the American Institute of Aeronautics and Astronautics Space Systems Award. He also has received the Meritorious and the Distinguished SES Presidential Rank.

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